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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,026

08/29/2006

Naoki Kanie

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OLIFF & BERRIDGE, PLC

P.O. BOX 320850

ALEXANDRIA, VA 22320-4850

EXAMINER

YANCHUK, STEPHEN J

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

03/16/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/591,026	Applicant(s) KANIE, NAOKI	
	Examiner STEPHEN YANCHUK	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6 and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-6, 8-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/24/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in prior office action.
2. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on 12/15/2009. The following action is properly made final.
3. The new grounds of rejection set forth below are necessitated by the disclosure of information contained in the IDS filed 8/24/2009. The following action is properly made final.
4. 112 6th was properly enacted by the applicant and the rejections pertaining to such are dropped.

Claim Rejections - 35 USC § 103

Claim 1-2, 3-6, 8-10 rejected under 35 U.S.C. 103(a) as obvious over Yoshizumi et al. (2002/0094469) in further view of Yamamoto et al. (PGPUB 2003/0077488)

Claim 1, 8, 10: Yoshizumi teaches a system comprising [Figure 7]:

A fuel gas tank (300);

A purge valve (414);

A diluting device (424) connected to (414) and discharge port (417);

An abnormality detection means whereby valve 426, 416, and 415 are triggered [Paragraph 130];

An output quality determination means to maintain the voltage [Paragraph 42-70].

Yoshizumi fails to teach an oxidant line that bypasses the fuel cell in order to provide an oxidizing gas supply to change the purged gas under an abnormal detection.

Yamamoto teaches a system comprising a control system to open and close a bypass oxidant valve in order to regulate the concentration of gas being expelled to that atmosphere [Paragraph 78-80]. Yamamoto teaches a fuel cell system comprising a means for diluting (44) hydrogen gas that has been purged from the fuel line via a purge pipe and valve (43). The system also comprises a change means (46) that increases the supplied quantity of oxidizing gas when there is an over abundance of hydrogen in the system so that the concentration of hydrogen being exhausted from the system is constant [Paragraph 78-80]. The combination of Yamamoto would not allow the abnormal purge valves of 409, 430 to expel directly to the atmosphere. Rational from MPEP 2144.04 of duplication of parts being the mixing element for fuel and off gas would lead to a combined system where lines 409 and 430 are first diluted from a direct oxidant source until their level is below the 4%. It would have been obvious for one of ordinary skill in the art to use Yamamoto to modify Yoshizumi because Yamamoto teaches a system for making the expelled hydrogen below the combustible concentration for safety reasons [Paragraph 10-11].

Claim 2: Yoshizumi teaches the release valves of 426, 416, and 415 activate when the internal pressure is too high. The internal pressure would increase as a fault of the purge valve (414). [Figure 7, Paragraph 130].

The purged 409 and 430 would be configured to contain the sensor, diluter, bypass line, and controller to measure the concentration of hydrogen in the line in order

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to provide the correct amount of oxidant through the bypass line as taught by Yamamoto.

Claim 4: Yamamoto teaches diluting the hydrogen being expelled from the fuel cell so that if it interacts with a fire, a larger fire or explosion does not occur (abnormal oxidation) [Paragraph 10-11]. Yamamoto teaches that the exhaust must be below 4% [Paragraph 74] which would inhibit the occurrence of an abnormal oxidation reaction after the fuel gas is diluted. Yamamoto teaches releasing more oxidizing gas to compensate for the increased concentration [Paragraph 79-80]. In order to enable this concentration control, Yamamoto implies sensors to control the valves.

Claim 5 & 6: Yamamoto teaches a means for discharge of oxidization gas that increases when needed to keep hydrogen concentration at exhaust to 4%. In order to accomplish this, the back pressure must increase for the hydrogen part through the communication means (49).

Claim 5: A back pressure of the purge valve will change when adding elements and increasing the volume of which that gas is flowing. The applicant should add more structurally limiting language to further define the if the backpressure is calculated or if a controller modifies the system based on this. The applicant has currently claimed a physical phenomenon of backpressure existing.

Claim 1-2, 3-6, 8-9 rejected under 35 U.S.C. 103(a) as obvious over Yoshizumi et al. (2002/0094469) in further view of Yamamoto et al. (PGPUB 2003/0077488) and Manery (PGPUB 2003/0022031).

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Claim 1, 8, 10: Yoshizumi teaches a system comprising [Figure 7]:

A fuel gas tank (300);

A purge valve (414);

A diluting device (424) connected to (414) and discharge port (417);

An abnormality detection means whereby valve 426, 416, and 415 are triggered [Paragraph 130];

An output quality determination means to maintain the voltage [Paragraph 42-70].

Yoshizumi fails to teach an oxidant line that bypasses the fuel cell in order to provide an oxidizing gas supply to change the purged gas under an abnormal detection.

Yamamoto teaches a system comprising a control system to open and close a bypass oxidant valve in order to regulate the concentration of gas being expelled to that atmosphere [Paragraph 78-80]. Yamamoto teaches a fuel cell system comprising a means for diluting (44) hydrogen gas that has been purged from the fuel line via a purge pipe and valve (43). The system also comprises a change means (46) that increases the supplied quantity of oxidizing gas when there is an over abundance of hydrogen in the system so that the concentration of hydrogen being exhausted from the system is constant [Paragraph 78-80]. The combination of Yamamoto would not allow the abnormal purge valves of 409, 430 to expel directly to the atmosphere. Rational from MPEP 2144.04 of duplication of parts being the mixing element for fuel and off gas would lead to a combined system where lines 409 and 430 are first diluted from a direct oxidant source until their level is below the 4%. It would have been obvious for one of

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ordinary skill in the art to use Yamamoto to modify Yoshizumi because Yamamoto teaches a system for making the expelled hydrogen below the combustible concentration for safety reasons [Paragraph 10-11].

Yoshizumi does not teach a very detailed voltage sensing system, although by the language it can be deduced that there is a system in place, it is not explicitly stated.

Manery teaches a fuel purge valve (70) and a voltage sensor (output quantity) (S4) wherein when the voltage sensor drops below a threshold, a purge is induced [Paragraph 50]. The purge valve control is taught to be element CS4. It would have been obvious to incorporate the teachings of Manery with Yamamoto because Manery teaches an improved controller system for fuel cell systems that includes a battery [Paragraph 7]. One of ordinary skill in the art would search for such a control since Yamamoto is silent as to the various controllers that operate the system. The specific motivation for the purge valve sensor is that Manery teaches a sensed purge will remove the impurities [Paragraph 70] and it would have been evident that Manery saves useable fuel.

Claim 9: Manery teaches various sensors and controllers to satisfy the external load [Paragraph 61]. Manery analyzes the fuel cell voltage and load demanded; if the fuel cell is not stabilized, a battery may be used to compensate to satisfy the load [Paragraph 87].

The above rejections relating to Yoshizumi and Yamamoto are applicable under this rejection but suppressed to reduce length of the office action.

Response to Arguments

1. Applicant's arguments with respect to claim 1, 8, 10 have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment and IDS disclosure.

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

3. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 8/24/2009 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN YANCHUK whose telephone number is (571)270-7343. The examiner can normally be reached on Monday through Thursday 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN YANCHUK/
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795

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